

Connection Details for Prefabricated Bridge Elements

Federal Highway Administration

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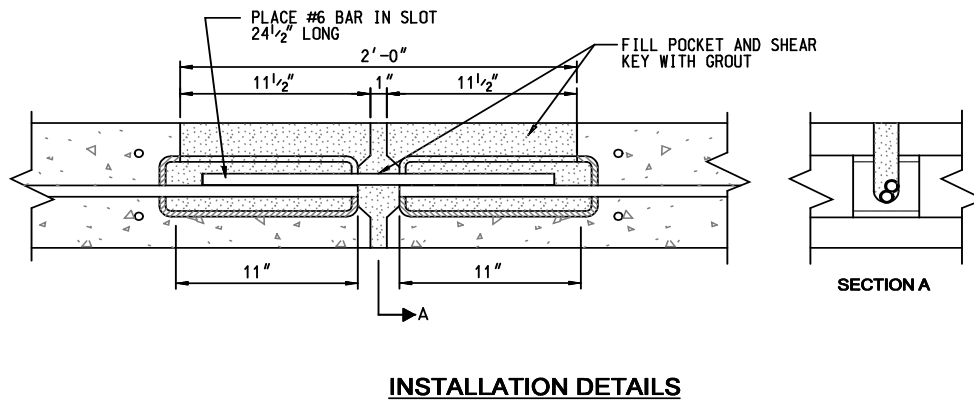
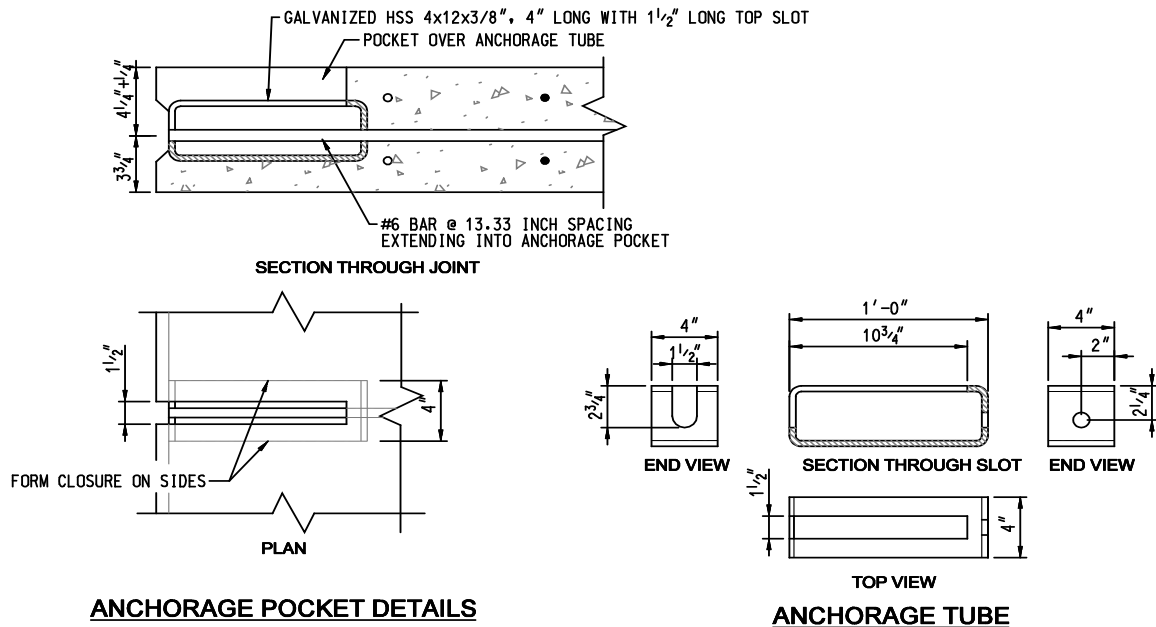
Detail Classification: Level 2

TOPIC AREA: Bridges > Superstructure > Full Depth Deck Slabs

Components Connected: Precast Full Depth Deck Panel to Prestressed Concrete I-Beam

Name of Project where the detail was used: Live Oak Creek Bridge

Connection Details: Manual Reference Section 2.1.1.1



REFERENCE TITLE:

Full Depth Deck Panel Zipper Pour

Description, comments, specifications, and special design procedures

This is believed to be the first use of the details developed and tested under NCHRP Project 12-65. The results of this research are available in NCHRP Report 584 entitled "Full Depth Precast Concrete Bridge Deck Panel Systems" authored by Sameh S. Badie at George Washington University and Maher K. Tadros at the University of Nebraska-Lincoln.

Features of the connection:

1. Longitudinal post-tensioning is not required to connect the deck panels in the field. Short reinforcing bars are placed in reinforced blockouts and grouted in place.
2. The bridge is a multi-span non-continuous structure, however the deck panels were run continuous over the beam to create a continuous deck. This approach is taken on many Texas bridges. Minor cracking is expected over the beam ends, which is acceptable in the arid environment.
3. A 1/4" thick sacrificial surface is cast in the panel so that grinding of the deck after installation is possible.

**Editor's Notes**

The submitting agency did not submit the data shown below. The authors have inserted the data based on a review of the details.

What forces are the connection designed to transmit? (place x in appropriate boxes)

Shear ☒ X ☐ Moment ☒ x ☐ Compression ☐ Tension ☐ Torsion ☐

What year was this detail first used?

Condition at last inspection (if known)

How many times has this detail been used?

Year of last inspection

Would you use it again?

☒ yes ☐ (yes/no/maybe)

On a scale of 1 to 10, how would you rate the performance of this connection in the following categories?

Speed of Construction (0 very slow, 10 very fast) When compared to conventional construction

Constructability (0 difficulty making connection, 10 went together easily)

Cost (0 expensive, 10 cost effective) When compared to other connection methods

Durability (0 not durable, 10 very durable)

Inspection Access (0 not visible, 10 easily inspected)

Future Maintenance (0 will need maintenance, 10 no maintenance anticipated)